

Connecticut Department of Energy & Environmental Protection
Office of Long Island Sound Programs

Connecticut National Estuarine Research Reserve Site Selection Process Document

FINAL DRAFT - Version 3.2

January, 2015

Contents

1. Introduction	3
1.1. NERR Mission, Goals, & Enabling Framework:.....	3
1.2. Why establish a NERR in Connecticut?	4
1.3. NERR Biogeographic Regions & Typologies:.....	4
2. Connecticut NERR Site Selection Processes.....	7
2.1. Connecticut NERR Teams & Functions	7
2.1.1. Connecticut NERR Partnership Team:.....	7
2.1.2. Site Screening Team:	8
2.1.3. Regional NERR Team:	9
2.1.4. Federal NERR Leadership:	10
2.2. Site Screening	10
2.2.1. Preliminary Screening Process:	11
2.2.2. Preliminary Screening Outreach:.....	13
2.2.3. Detailed Screening Process:	13
2.2.4. Detailed Screening Outreach:	14
2.2.5. Final Evaluation & Nomination:	15
3. Connecticut NERR Major Task Milestones:	15
Appendices.....	17
Appendix A: Section 315 of the Coastal Zone Management Act	18
Appendix B: 15 CFR Section 921.11 - Site selection and feasibility	21
Appendix C: Detailed Connecticut Site Selection Criteria	23

1. Introduction

This document describes the selection process and criteria that will be used to select a Connecticut National Estuarine Research Reserve (NERR) based on the regulations cited below and informed by the guidance/technical expertise of other states (e.g., Texas and Wisconsin) that have recently completed the NERR site selection process. Before any site screening and selection can proceed in Connecticut, the National Oceanic and Atmospheric Administration's (NOAA) Office for Coastal Management (OCM) must review and approve this document. OCM also is the home of a number of services that provide technical assistance to the Reserve System.¹

1.1. NERR Mission, Goals, & Enabling Framework:

The NERR System is a partnership of NOAA and coastal states to study and protect vital coastal and estuarine resources. The mission of the NERR program is to establish and manage, through federal-state cooperation, a system of estuarine research reserves representing various regions and estuary types of the United States whose goals are to:

- Ensure a stable environment for research through long-term protection of NERR resources;
- Address coastal management issues identified as significant through coordinated estuarine research within the system;
- Enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation;
- Promote Federal, State, public & private use of one or more Reserves within the system when such entities conduct estuarine research; and
- Conduct and coordinate estuarine research within the system, gathering and making available information necessary for improved understanding and management of estuarine areas.²

The most recent NERR Strategic Plan for 2011 – 2016³ also identifies the following goals based on a mission to practice and promote stewardship of coasts and estuaries through innovative research, education, and training using a place-based system of protected areas:

- Protected Places Goal - Estuaries and coastal watersheds are better protected and managed by implementing place-based approaches at Reserves.
- Science Goal - NERRS scientific investigations improve understanding and inform decisions affecting estuaries and coastal watersheds.
- People Goal - NERRS education and training increases participants' environmental literacy and ability to make science-based decisions related to estuaries and coastal watersheds.

Reserves are established under Section 315 of the national Coastal Zone Management Act (see Appendix A); the regulations governing site selection for a NERR are defined in the Code of Federal Regulations (15 CFR Section 921.11; see Appendix B). In addition to these statutory requirements, NOAA-OCM provides a guidance document outlining

¹ <http://www.nerrs.noaa.gov/BGDefault.aspx?ID=17>

² 15 CFR Section 921.1(a), (b)

³ <http://nerrs.noaa.gov/Doc/PDF/Background/StrategicPlan2011.pdf>

best practices for the Site Selection Criteria and Process.⁴ This document customizes the guidance from NOAA-OCM to account for the regional differences in characteristics of the ecosystems and habitats under consideration and will serve as the basis for how sites will be evaluated in Connecticut.

1.2. Why establish a NERR in Connecticut?

Long Island Sound is among the most important and valuable estuaries in the nation, a fact made clear in 1987 when Congress designated Long Island Sound an estuary of national significance. It is home to over 1200 species of invertebrates, 170 species of fish, and has recently been calculated to provide an ecosystem-based value of approximately \$5.5 billion.⁵ A Connecticut NERR, working in concert with existing environmental management and educational institutions, would complement and expand science and education to greatly improve the management of Long Island Sound in the following ways:

- Reserve staff will work with local communities to address existing and evolving natural resource management issues, such as non-point source pollution, habitat restoration, invasive species, and climate change adaptation.
- Reserves will provide adult audiences with training on estuarine issues of concern in their local communities. They will also offer educational opportunities for K-12 students and support teachers through professional development programs in marine education.
- Reserves will provide critically needed long-term environmental monitoring programs as well as opportunities for both scientists and students to conduct research in a “living laboratory.”
- Reserves are eligible for federal funding programs that are only available to a NERR site.

The Office of Long Island Sound Programs (OLISP) of the Connecticut Department of Energy and Environmental Protection (DEEP) has been designated by the Governor as the lead State entity for selecting and designating a Connecticut NERR. OLISP will also partner with the Marine Sciences Department of the University of Connecticut and the Connecticut SeaGrant Consortium. This collaboration between the lead state agencies for coastal resource management, marine science and research, and marine education and outreach align well with the NERR goals and will bring to bear a solid source of knowledge and experience to the process. The specific nature of the organizational structure and additional expertise is addressed in greater detail in the section “Connecticut NERR Site Selection Processes - Connecticut NERR Teams & Functions”

1.3. NERR Biogeographic Regions & Typologies:

NERR sites are chosen to reflect regional variations and ecosystem types termed “biogeographic regions.” Connecticut lies within the Virginian Biogeographic region as

⁴ National Estuarine Research Reserve Designation, Site Selection and Nomination. NOAA ERD, May 2005.

⁵ <http://longislandsoundstudy.net/about-the-sound/what-makes-it-special/>

defined by NOAA, encompassing the coastal areas from Cape Cod, MA to Chesapeake Bay, VA (areas 3 through 5 on Figure 1.) Biogeographic regions are further classified into sub-regions; the Southern New England Sub-region (area 3 on Figure 1) ranges from Cape Cod, Massachusetts to Sandy Hook, New Jersey. This distinction is important as there are currently three NERR sites in the Southern New England sub-region: Hudson River, NY, Narragansett Bay, RI, and Waquoit Bay, MA.

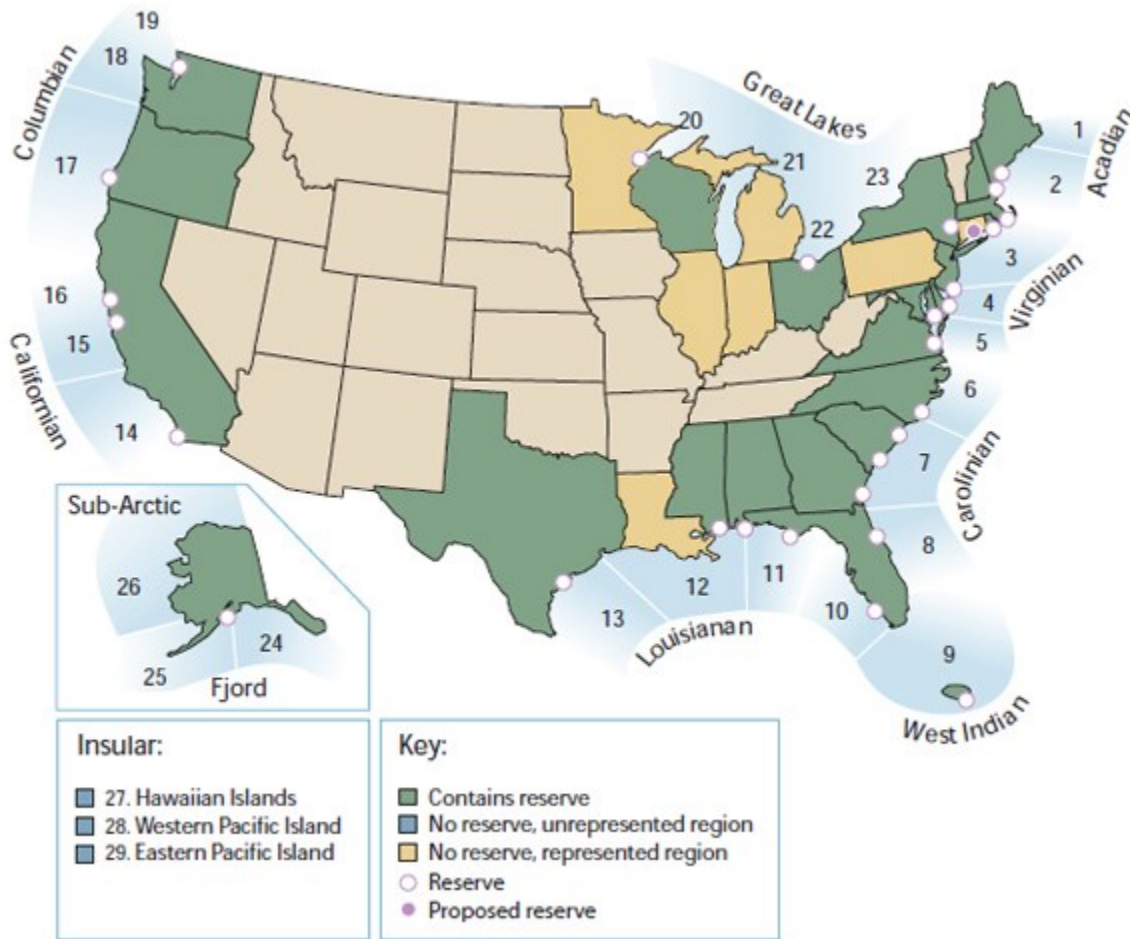


Figure 1: Biogeographic regions (named) and sub-regions (numbered) of the National Estuarine Research Reserve System.



Figure 2. Southern New England Sub-region. Long Island Sound is the largest estuary in this region.

Estuaries can exhibit a variety of different characteristics – the NERR program refers to these differing characteristics as “typologies,” and uses them, in part, “...to ensure that sites in the system reflect the wide range of estuarine types within the United States.”⁶ NOAA provides a detailed listing of typologies on their NERR web site.⁷ One of the guiding principles for selecting a site, outlined in CFR Section 921.11(c)(1), refers to its “...contribution to the biogeographical and typological balance of the National Estuarine Research Reserve System. NOAA will give priority consideration to proposals to establish Reserves in biogeographic regions or sub-regions or incorporating types that are not represented in the system.” Since Connecticut is in a sub-region with existing reserves, it will be imperative to evaluate and identify typological elements that are currently not represented within the Reserve system in order to enhance the likelihood of nomination and designation. As part of the site selection process, it is proposed that Connecticut work closely with the existing reserves to determine priority typologies for a Connecticut NERR. Such coordination will allow for a comprehensive typology assessment as well as the identifying other aspects such as size, distribution, and quality.

The two major estuarine complexes in Connecticut include Long Island Sound and Fishers Island Sound. Within the Southern New England Sub-region Long Island Sound is the single largest estuarine waterbody, totaling 1320 square miles. For the purposes of the NERR site selection process, the proposed area for consideration includes all estuarine waters within the Connecticut Coastal Area (as defined by Connecticut General Statute (C.G.S.) 22a-94(a)) and in the case of the Connecticut River, all tidal waters within the Ramsar Project Area.⁸

⁶ 15 CFR Section 921.3(a)

⁷ <http://nerrs.noaa.gov/BGDefault.aspx?ID=303>

⁸ This area is a complex of tidal wetlands designated as “wetlands of international importance” by the Ramsar Convention, an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975.

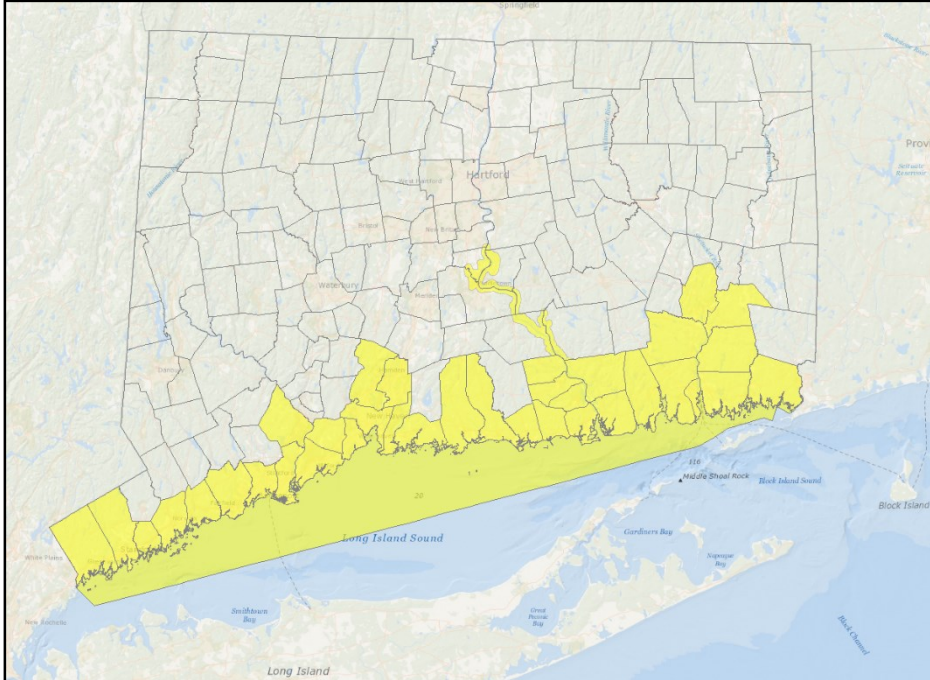


Figure 3: Proposed area (yellow) in consideration for siting a Connecticut NERR.

2. Connecticut NERR Site Selection Processes

The following sections describe the process Connecticut will follow for selecting and nominating a NERR site. This represents an overall approach that is consistent with Section 315 of the CZMA, the associated CFR regulations, and the guidelines prepared by OCM. Input from the experiences of recently added reserves (Lake Superior - WI and Mission Aransas -TX) was also used to provide more targeted process-level details.

2.1. Connecticut NERR Teams & Functions

Based on communications with other states who have recently gone through the site selection process, two general approaches were used. One involves large, all-inclusive committees representing all interested parties. The other involves creating small groups that engage external resources as needed. In evaluating the two approaches, Connecticut favors the latter and proposes to develop four topically driven entities: a state management team responsible for the overall site selection responsibilities and providing day-to-day operational oversight, coordination, and support; a team of subject-matter experts to apply and evaluate site feasibility criteria; and two supporting teams from the Federal Government and the NERR network to provide process guidance and institutional knowledge/resources. Below is a more complete description of the teams and their goals and objectives.

2.1.1. Connecticut NERR Partnership Team:

The NERR mission includes goals defined both in an overall capacity and in time-specific planning horizons with strong ties to environmental research, education, and outreach.

To ensure that a Connecticut NERR is selected to meet or exceed these goals and that the process is managed in an efficient manner, a management team, the Connecticut NERR Partnership Team (CNPT), with proven expertise, resources, and leadership will be created with representation from the following agencies:

- DEEP-OLISP – As the State’s federally approved coastal zone management program, OLISP has been designated by the Governor as the State agency tasked to coordinate and lead the effort. OLISP will also coordinate with other relevant DEEP programs (e.g., State Parks) to ensure the team’s goals and objectives are met.
- University of Connecticut Marine Sciences Program – provides recognized expertise in physical, chemical, geologic, and biologic estuarine research and higher education.
- Connecticut Sea Grant – specialized expertise in education & outreach, as well as engaging in research that addresses a range of coastal management issues

The CNPT will operate under the following goals and objectives:

- Goal: To manage all aspects of the Site Selection process and ensure that the nominated site meets both Federal NERR goals and Connecticut’s needs regarding long-term protection, research on coastal management issues, public education and outreach.
- Primary Objectives:
 - Process Management:
 - Provides overall process administration, oversight and direction.
 - Provides instructions/comments/advice to teams as needed.
 - Acts as a liaison with Federal NERR leadership.
 - Reviews and approves the output of the screening processes.
 - Recommends that the Commissioner of DEEP submit the chosen site to the Governor for formal nomination.
 - Communication:
 - Coordinates communication between and among the NERR teams, the public, municipal officials, State/Federal legislative bodies, media, etc.
 - Provides education to the public, municipal officials, State/Federal legislative delegates, media, etc., about NERR process.
 - Maintains a publically accessible website to act as a central repository for Connecticut NERR Site Selection information and provides mechanism(s) – e.g., e-mail, social media, etc. - to receive input and suggestions from interested parties at any time.
 - Organizes public and non-public meetings/workshops.
- Operates by:
 - Consensus
 - Led by OLISP designee

2.1.2. Site Screening Team:

The Site Screening Team (SST) will be responsible for inventorying, analyzing and evaluating sites for a potential Connecticut NERR. Given the level of time and

commitment required to produce a decision and the ancillary material supporting it, the SST will be initially composed of at least one representative from each of the agencies on the CNPT to provide a consistent group of core leadership throughout the process. To this, additional members will be added by:

- A targeted invitation by the CNPT to state/local/regional/national individuals with recognized topical expertise or background prior to the formal commencement of the process (e.g., land managers, ecologists, wetland scientists, municipal staff, etc.);
- A general invitation to interested parties as part of or in support of the initial public engagement.

Both invitations will provide an outline of the duties and anticipated timelines, and ask that a reasonable level of direct involvement can be counted on.

During the course of its duties, the SST will be empowered to identify and engage outside experts who will not be part of any formal decision making processes, but will serve to provide the information needed to fully and completely apply the evaluation criteria. Examples of outside experts could include but not be limited to: educators, published researchers, NGO members, municipal leaders, or members of local or regional commissions/boards/offices, etc. Special coordination between the SST and land managers will be required during specific phases of the evaluation, and the SST will be required to engage these at the proper times.

- Goal: To manage and carry out the Site Screening Process to select a Connecticut NERR site nominee.
- Primary Objectives:
 - To understand and apply the preliminary and detailed screening criteria.
 - Organizes meetings/workshops.
 - Identifies and engages outside experts to provide input to the decision-making processes.
 - Provides updates on progress to CNPT.
 - Presents findings of preliminary screening as a workshop/meeting & report.
 - Presents findings of detailed screening as a workshop/meeting & report.
 - Reviews and addresses public comments on preliminary/detailed screening as needed.
- Operates by:
 - Majority
 - Led by self-selected team chair.

2.1.3. Regional NERR Team:

The Regional NERR Team (RNT) will be comprised of invited representatives from each of the three existing NERR's in the Southern New England sub region. These individuals will bring key knowledge to the process regarding typology, experience in management of a NERR site, and implementation of required programs.

- Goal: To provide existing and anticipated knowledge and expertise in NERR selection and operation to the Connecticut NERR selection process.
- Objectives:

- Help SST evaluate regional typology and identify salient differences between sites with similar typologies.
- Advise SST on how candidate sites can best reflect the NERR System goals.
- Identify potential issues/strategies for consideration during site selection (e.g., suitability/limitations for education, research, monitoring, stewardship, management, etc.,) based on their own experiences or those of other NERRs.
- Provide knowledge/insights about NERR operations that might be relevant or important to consider during a selection process.
- Participates in meetings/workshops as needed.
- Operates by:
 - Advisory capacity only

2.1.4. Federal NERR Leadership:

In order to assist in the site selection process, NOAA-OCM has dedicated staff to function as a liaison between established NERR leadership and Connecticut. While not participating in any decision making capacity, these staff will provide general counsel/guidance to the Connecticut teams during the process and assistance in communication and education on the NERR program.

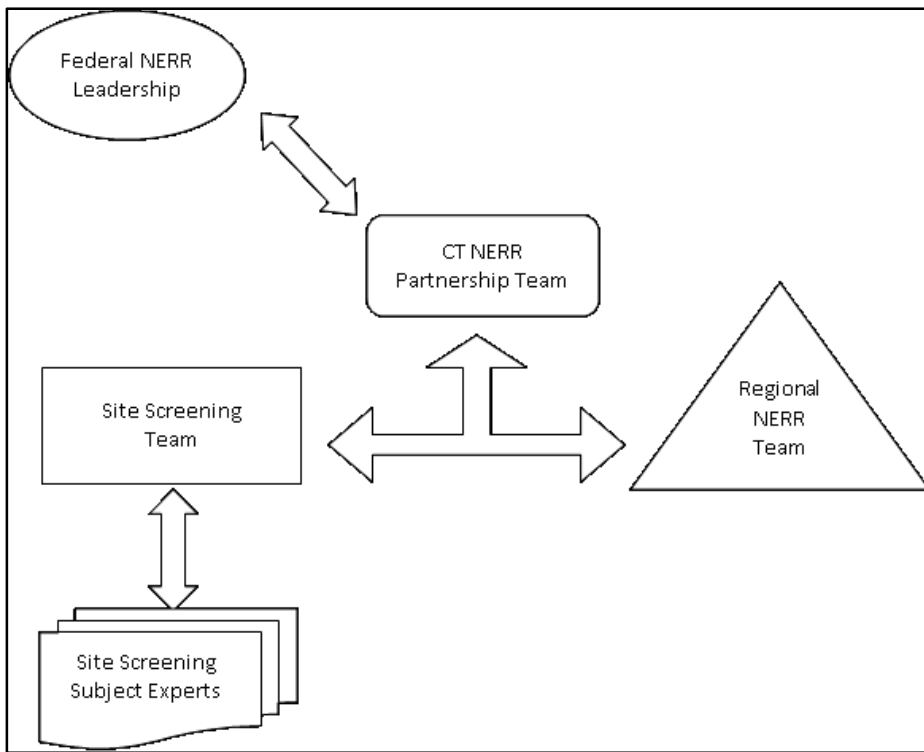


Figure 4: NERR Teams organization

2.2. Site Screening

In order to critically evaluate locations for the Connecticut NERR, a two-tier evaluation system will be used. The first tier, or Preliminary Screening, is designed to reduce the suite of potential sites to a manageable number. The second tier or Detailed Screening

(included in Appendix C), will then apply a set of robust, well-vetted criteria to determine the best site for a Connecticut NERR. Within the context of the overall screening process, several points should be noted.

Public Involvement:

Ensuring the public is adequately involved and engaged has been identified as a critical element both from NOAA OCM as well as from states that have recently gone through the selection process. It is particularly important in the early stages where explanation and information on what a NERR is (and is not) should form the basis of a common framework of understanding, mitigate areas of potential conflict, and set reasonable expectations. Efforts to engage the public and stakeholders will be led by the CNPT.

Multiple Sites:

In an ideal scenario, Connecticut would identify and nominate a single location providing suitable facilities and resources for research and educational activities rather than consider multiple sites that comprise a whole Reserve. Connecticut acknowledges the fundamental challenges multi-site NERRs can bring and understands that the logistical, financial, and management issues are not to be trivialized. However, there may be sufficient value in a multi-site approach in Connecticut, particularly with respect to providing the necessary typology to the southern New England NERR system. Therefore, a multi-site NERR may be considered as part of the site selection process. In evaluating a multi-site NERR, one site will be considered the "primary site," representing the main facility and estuarine reserve complex while other "secondary site(s)" would represent additional viable areas for research, monitoring, etc. The multi-site configuration should only be seriously considered when there is no apparent way a single-site NERR could be viable.

Climate Change:

The NOAA OCM guidelines currently contain no specific provisions for considering climate change resiliency/adaptability, yet climate change is one of three strategic areas of focus for the reserve system and important to consider. Connecticut believes that climate change criteria should be used to create a stronger list of potential sites. Connecticut's preliminary and detailed screening will therefore factor in climate change adaptability/resiliency into the process to assure that any Connecticut NERR site can remain intact and functional, both now and in the foreseeable future and be a laboratory for evaluating the impact of climate change and vetting adaptation and mitigation strategies.

2.2.1. Preliminary Screening Process:

NOAA OCM guidelines allow for the use of preliminary screening criteria to reduce the number of candidate sites for consideration. Specifically, the guidelines state:

"Prior to the application of the full suite of site selection criteria...it may be appropriate for the state, in consultation with [OCM], to utilize a simplified procedure to screen proposed sites to eliminate those areas that are clearly not suitable candidates. A preliminary screening is desirable to reduce the sites considered to three to five sites, thereby reducing the amount of time and effort required to apply the full suite of

criteria. A candidate site that does not appear to meet each of the following criteria should be eliminated from the site selection process.”

Connecticut plans to employ this procedure to identify 3 to 5 formal candidates from an initial inventory within the project region identified in Section 1.3. This will begin with a series of possible sites based on selections by the core group of the SST inventory to create a straw-man that can expand to include any other similarly viable sites that are suggested from the broader SST invitations and public meetings. The SST will then compile a final version of the initial inventory and apply the preliminary screening criteria. These criteria, taken from NOAA OCM guidelines, are:

1. The site is a representative estuary in the biogeographic region or sub-region (i.e., Southern New England sub-region).
2. The proposed boundaries of the site include sufficient land and water area to maintain the integrity of the ecosystem.
3. The candidate site consists of publicly owned lands and/or demonstrates sufficient potential for land acquisition and adequate land use control to meet NERRS objectives.
4. The candidate site is accessible by normal modes of transportation.
5. The candidate site is suitable for research, monitoring, and resource protection activities.
6. The candidate site is suitable for education, training, and interpretation activities.
7. The candidate site is suitable to address key local, state, and regional coastal management issues.

Preliminary Site Scoring Matrix	
3 Points	The site is well suited for preliminary criteria.
2 Points	The site is moderately suited for preliminary criteria.
1 Point	The site is marginally suited for preliminary criteria.
0 Points	The site is not suited for preliminary criteria

Prior to applying the criteria, the SST will first assess the initial inventory of sites based on their suitability as either:

1. A single, self-contained site.
2. The primary component⁹ of a multi-site
3. A secondary component¹⁰ of a multi-site (note: secondary site(s) may be associated to multiple primary sites.)

Where necessary, the individual sites will be assembled into multi-sites. Once any single and multi-sites sites have been suitably finalized, the SST members will then individually apply the above criteria to evaluate and rank them, keeping track of how the effects of climate change might impact their viability. The SST will then aggregate scoring results to identify 3 to 5 candidates to move forward. NOTE: at this stage the process will be flexible enough allow for a discussion of the final ranking in the event there are questions on the quality of the top 3 to 5 sites. For instance, a site outside of the initial

⁹ as defined in the Screening Overview – Multiple Site section above

¹⁰ as defined in the Screening Overview – Multiple Site section above

top 5 could replace one, but to do so a majority of the SST members must agree to modify the list.

2.2.2. Preliminary Screening Outreach:

During Preliminary Screening there will be two formal outreach components. The first will be an initial public information meeting prior to the beginning of the process to present an overview of the Goals/Mission of a NERR, why Connecticut is undertaking this, how the process will function, and in general serve as a question and answer forum for the public. Additionally, the SST will seek voluntary membership from interested parties to assist in the preliminary screening.

In addition, there will be a similarly structured public meeting at the end of the Preliminary Screening so that members of the SST can present the candidates and the contents of their summary report for comment and discussion.

After the event, the preliminary screening report and a summary of the discussions and comments will be publically posted to solicit further feedback from a potentially broader audience. At the conclusion of the comment period, the SST will consider the input received from the public meeting and comment period and finalize their recommendations.

2.2.3. Detailed Screening Process:

The top 3 to 5 sites resulting from the preliminary screening process will be subject to a more rigorous evaluation outlined in Appendix C.¹¹ The SST will be the primary team leading this effort and will also expand to encompass the knowledge and expertise of local, regional, and national experts. These outside experts should have a suitable background in the topical areas represented by the Detailed Site Assessment criteria and could be represented by, but not necessarily limited to:

- Municipal officials
- Property owners
- Appropriate municipal commissions (e.g., planning and zoning, conservation, etc.,)
- Trade associations
- NGO's
- Subject matter experts in areas of ecology, wildlife, forestry, natural resource management, land-use management, etc., from academic institutions or similar organizations.

The CNPT, based on recommendations from the SST, will approve the composition of the outside experts.

In order to properly evaluate the prime candidate sites, the SST, along with any necessary outside experts, will conduct at least one or more visits to each candidate site to become familiar with the layout, assess ecological/typological values, and evaluate potential resource conflicts and coastal management issues. The site visit(s) are intended to complement meetings, conference calls, webinars, etc., the SST should use to discuss and assess the relative merits of the sites as they relate to the criteria

¹¹ The depth and breadth of the detailed evaluation criteria prevent their inclusion here; please refer to Appendix C to review their scope

identified in Appendix C. Once these are complete, the SST members will then individually score the sites based on their findings by using a common ratings sheet designed for this purpose. (NOTE: any outside experts will only provide information; they will not be involved in the final scoring.)

The SST Chair must convene a meeting of the Committee where members share and discuss their individual ratings of each proposal. A member may, but is not required to, change any individual rating as a result of the Committee's discussions.

When the members are satisfied with their ratings, no further changes will be permitted on the rating sheet. Members shall print out each site's rating sheet and sign and date the certification portion. For each site, the Chair shall calculate the average score (to two decimal places) for each criterion provided by the reviewers. The average scores for each site will then be totaled and divided by the total possible points. The result shall constitute the final rating for a site. In the event that two sites receive the same final rating, a simple majority vote of the Committee must break the tie. In the event that more than two sites receive the same final rating, the Committee must determine by unanimous vote a fair and equitable method to break the tie.

The SST shall prepare a preliminary report with recommendations for the CNPT. The report must include, at a minimum, the names and ratings of the sites. It should also include a summary of any noteworthy issues, discussions, or points of interest that arose during the review process. The report shall be reviewed, adopted and signed by the full SST Committee. The Chair shall then present the contents of report as part of the final public meeting, described below.

2.2.4. Detailed Screening Outreach:

During the Detailed Screening process, the chief elected official in each site's town will be notified about the assessment process and the SST will schedule a meeting(s) with municipal officials to seek their input and help identify experts who can help evaluate the sites with respect to areas where local expertise is required. If deemed necessary by the SST, workshops may be held in the town to seek further information from the public and local experts about the site.

Once the SST has arrived at a final site to nominate as the Connecticut NERR site, a public meeting will be held in accordance with CFR 921.11(d) which states:

"Early in the site selection process the state must seek the views of affected landowners, local governments, other State and Federal agencies and other parties who are interested in the area(s) being considered for selection as a potential National Estuarine Research Reserve. After the local government(s) and affected landowner(s) have been contacted, at least one public meeting shall be held in the vicinity of the proposed site. Notice of such a meeting, including the time, place, and relevant subject matter, shall be announced by the state through the area's principal newspaper at least 15 days prior to the date of the meeting and by NOAA in the Federal Register."

At this public meeting the SST will present the results of their detailed screening effort and solicit feedback. The results of the preliminary report will then be made available on the web for wider review/comment for one month. All comments received through public meetings and the website postings will be summarized and included as part of the site selection submission to NOAA, although the SST can choose to address/evaluate comments for inclusion in the report at their discretion.

2.2.5. Final Evaluation & Nomination:

After reviewing and evaluating all final comments, the SST will submit the final report with the ranking and site recommendation to the CNPT. The Partnership Team, upon review and concurrence by consensus, then will recommend to the Commissioner of the Connecticut Department of Energy & Environmental Protection that the site should be formally nominated by the Governor of Connecticut to NOAA OCM as the Connecticut NERR site.

3. Connecticut NERR Major Task Milestones:

Below is list of anticipated major project milestones (and sub-milestones) for the Site Selection process after approval from NOAA OCM and the CNPT is assembled:

- Initial Administrative Meetings – CNPT, Federal NERR Leadership Team
 - Identify & organize personnel from various sectors to create Site Selection, and Regional NERR teams;
 - Create initial inventory of potential sites;
 - Compile/create educational and outreach materials;
 - Set up Connecticut NERR web site and create master contact lists.
- NERR Project Kickoff Meeting - CNPT, Federal NERR Leadership Team & invitees
 - Letters, press releases, e-mails, etc., to broad base of interest levels (general public, municipal officials, academic institutions, NGO's, etc.,) advertising the process, advocating benefits, soliciting contact information.
 - Initial Public Meeting to frame the process.
 - Finalize Site Selection Team.
- Preliminary Site Screening – SST, Regional NERR Team
 - Assorted Meetings/workshops to inventory/assess/evaluate initial list of sites.
 - Provide listing of 3-5 candidate sites to other Connecticut NERR teams.
 - Draft preliminary process report.
- Preliminary Site Screening Public Meeting – All Teams
 - Public meeting explaining screening justification to the public, opportunity to react to/answer questions, solicit feedback on candidate sites.
 - Seek and recruit outside experts for Detailed Selection Process.
 - Final preliminary process report identifying final sites to assess.
- Detailed Site Selection - SST, Regional NERR Team, outside experts
 - Assorted meetings & site visits to apply the full site selection criteria to candidate sites. (Meetings should include municipal officials/interested parties from site towns.)
 - Score and rank the candidate sites.
 - Draft Detailed Process Report.

***** FINAL DRAFT *****

- Detailed Site Selection Public Meeting – All Teams
 - Public meeting explaining assessment justification to the public, opportunity to react to/answer questions, solicit feedback on nominee.
- Public Comment Period – public
 - Solicit feedback from the public for 30 days.
 - Final Detailed Process Report.
- Formal Connecticut NERR Site Nomination Announcement – CNPT
 - Release of Connecticut NERR Site Nomination to all stakeholders.

Appendices

Appendix A: Section 315 of the Federal Coastal Zone Management Act

Appendix B: 15 CFR Section 921.11 – Site Selection and Feasibility

Appendix C: Detailed Connecticut Site Selection Criteria

Appendix A: Section 315 of the Coastal Zone Management Act

16 U.S.C. § 1461. National Estuarine Research Reserve System (Section 315)

(a) Establishment of System

There is established the National Estuarine Research Reserve System (hereinafter referred to in this section as the "System") that consists of--

- (1) each estuarine sanctuary designated under this section as in effect before April 7, 1986; and
- (2) each estuarine area designated as a national estuarine reserve under subsection (b) of this section.

Each estuarine sanctuary referred to in paragraph (1) is hereby designated as a national estuarine reserve.

(b) Designation of national estuarine reserves

After April 7, 1986, the Secretary may designate an estuarine area as a national estuarine reserve if--

- (1) the Governor of the coastal state in which the area is located nominates the area for that designation; and
- (2) the Secretary finds that--
 - (A) the area is a representative estuarine ecosystem that is suitable for long-term research and contributes to the biogeographical and typological balance of the System;
 - (B) the law of the coastal state provides long-term protection for reserve resources to ensure a stable environment for research;
 - (C) designation of the area as a reserve will serve to enhance public awareness and understanding of estuarine areas, and provide suitable opportunities for public education and interpretation; and
 - (D) the coastal state in which the area is located has complied with the requirements of any regulations issued by the Secretary to implement this section.

(c) Estuarine research guidelines

The Secretary shall develop guidelines for the conduct of research within the System that shall include--

- (1) a mechanism for identifying, and establishing priorities among, the coastal management issues that should be addressed through coordinated research within the System;
- (2) the establishment of common research principles and objectives to guide the development of research programs within the System;
- (3) the identification of uniform research methodologies which will ensure comparability of data, the broadest application of research results, and the maximum use of the System for research purposes;
- (4) the establishment of performance standards upon which the effectiveness of the research efforts and the value of reserves within the System in addressing the coastal management issues identified in paragraph (1) may be measured; and
- (5) the consideration of additional sources of funds for estuarine research than the funds authorized under this chapter, and strategies for encouraging the use of such funds within the System, with particular emphasis on mechanisms established under subsection (d) of this section.

In developing the guidelines under this section, the Secretary shall consult with prominent members of the estuarine research community.

(d) Promotion and coordination of estuarine research

The Secretary shall take such action as is necessary to promote and coordinate the use of the System for research purposes including--

- (1) requiring that the National Oceanic and Atmospheric Administration, in conducting or supporting estuarine research, give priority consideration to research that uses the System; and
- (2) consulting with other Federal and State agencies to promote use of one or more reserves within the System by such agencies when conducting estuarine research.

(e) Financial assistance

(1) The Secretary may, in accordance with such rules and regulations as the Secretary shall promulgate, make grants--

(A) to a coastal state--

- (i) for purposes of acquiring such lands and waters, and any property interests therein, as are necessary to ensure the appropriate long-term management of an area as a national estuarine reserve,
- (ii) for purposes of operating or managing a national estuarine reserve and constructing appropriate reserve facilities, or
- (iii) for purposes of conducting educational or interpretive activities; and

(B) to any coastal state or public or private person for purposes of supporting research and monitoring within a national estuarine reserve that are consistent with the research guidelines developed under subsection (c) of this section.

(2) Financial assistance provided under paragraph (1) shall be subject to such terms and conditions as the Secretary considers necessary or appropriate to protect the interests of the United States, including requiring coastal states to execute suitable title documents setting forth the property interest or interests of the United States in any lands and waters acquired in whole or part with such financial assistance.

(3)

(A) The amount of the financial assistance provided under paragraph (1)(A)(i) with respect to the acquisition of lands and waters, or interests therein, for any one national estuarine reserve may not exceed an amount equal to 50 percent of the costs of the lands, waters, and interests therein or \$5,000,000, whichever amount is less.

(B) The amount of the financial assistance provided under paragraph (1)(A)(ii) and (iii) and paragraph (1)(B) may not exceed 70 percent of the costs incurred to achieve the purposes described in those paragraphs with respect to a reserve; except that the amount of the financial assistance provided under paragraph (1)(A)(iii) may be up to 100 percent of any costs for activities that benefit the entire System.

(C) Notwithstanding subparagraphs (A) and (B), financial assistance under this subsection provided from amounts recovered as a result of damage to natural resources located in the coastal zone may be used to pay 100 percent of the costs of activities carried out with the assistance.

(f) Evaluation of System performance

(1) The Secretary shall periodically evaluate the operation and management of each national estuarine reserve, including education and interpretive activities, and the research being conducted within the reserve.

(2) If evaluation under paragraph (1) reveals that the operation and management of the reserve is deficient, or that the research being conducted

within the reserve is not consistent with the research guidelines developed under subsection (c) of this section, the Secretary may suspend the eligibility of that reserve for financial assistance under subsection (e) of this section until the deficiency or inconsistency is remedied.

(3) The Secretary may withdraw the designation of an estuarine area as a national estuarine reserve if evaluation under paragraph (1) reveals that--

(A) the basis for any one or more of the findings made under subsection (b)(2) of this section regarding that area no longer exists;

or

(B) a substantial portion of the research conducted within the area, over a period of years, has not been consistent with the research guidelines developed under subsection (c) of this section.

(g) Report

The Secretary shall include in the report required under section 1462 of this title information regarding--

(1) new designations of national estuarine reserves;

(2) any expansion of existing national estuarine reserves;

(3) the status of the research program being conducted within the System;

and

(4) a summary of the evaluations made under subsection (f) of this section.

Appendix B: 15 CFR Section 921.11 - Site selection and feasibility

(a) A coastal state may use Federal funds to establish and implement a site selection process which is approved by NOAA.

(b) In addition to the requirements set forth in subpart I, a request for Federal funds for site selection must contain the following programmatic information:

- (1) A description of the proposed site selection process and how it will be implemented in conformance with the biogeographic classification scheme and typology (§ 921.3);
- (2) An identification of the site selection agency and the potential management agency; and
- (3) A description of how public participation will be incorporated into the process (see § 921.11(d)).

(c) As part of the site selection process, the state and NOAA shall evaluate and select the final site(s). NOAA has final authority in approving such sites. Site selection shall be guided by the following principles:

- (1) The site's contribution to the biogeographical and typological balance of the National Estuarine Research Reserve System. NOAA will give priority consideration to proposals to establish Reserves in biogeographic regions or subregions or incorporating types that are not represented in the system. (see the biogeographic classification scheme and typology set forth in § 921.3 and appendices I and II);
- (2) The site's ecological characteristics, including its biological productivity, diversity of flora and fauna, and capacity to attract a broad range of research and educational interests. The proposed site must be a representative estuarine ecosystem and should, to the maximum extent possible, be an estuarine ecosystem minimally affected by human activity or influence (see § 921.1(e)).
- (3) Assurance that the site's boundaries encompass an adequate portion of the key land and water areas of the natural system to approximate an ecological unit and to ensure effective conservation. Boundary size will vary greatly depending on the nature of the ecosystem. Reserve boundaries must encompass the area within which adequate control has or will be established by the managing entity over human activities occurring within the Reserve. Generally, Reserve boundaries will encompass two areas: Key land and water areas (or "core area") and a buffer zone. Key land and water areas and a buffer zone will likely require significantly different levels of control (see § 921.13(a)(7)). The term "key land and water areas" refers to that core area within the Reserve that is so vital to the functioning of the estuarine ecosystem that it must be under a level of control sufficient to ensure the longterm viability of the Reserve for research on natural processes. Key land and water areas, which comprise the core area, are those ecological units of a natural estuarine system which preserve, for research purposes, a full range of significant physical, chemical and biological factors contributing to the diversity of fauna, flora and natural processes occurring within the estuary. The determination of which land and water areas are "key" to a particular Reserve must be based on specific scientific knowledge of the area. A basic principle to follow when deciding upon key land and water areas is that they should encompass resources representative of the total ecosystem, and which if compromised could endanger the research objectives of the Reserve. The term *buffer zone* refers to an area adjacent to or surrounding key land and water areas and essential to their integrity. Buffer zones protect the core area and provide additional protection for estuarine-dependent species, including those that are rare or endangered. When determined appropriate by the state and approved by NOAA, the buffer zone may also include an area necessary for facilities required for research and interpretation. Additionally, buffer zones should be established sufficient to accommodate a shift of the core area as a result of biological, ecological or

geomorphological change which reasonably could be expected to occur. National Estuarine Research Reserves may include existing Federal or state lands already in a protected status where mutual benefit can be enhanced. However, NOAA will not approve a site for potential National Estuarine Research Reserve status that is dependent primarily upon the inclusion of currently protected Federal lands in order to meet the requirements for Reserve status (such as key land and water areas). Such lands generally will be included within a Reserve to serve as a buffer or for other ancillary purposes; and may be included, subject to NOAA approval, as a limited portion of the core area;

(4) The site's suitability for longterm estuarine research, including ecological factors and proximity to existing research facilities and educational institutions;

(5) The site's compatibility with existing and potential land and water uses in contiguous areas as well as approved coastal and estuarine management plans; and

(6) The site's importance to education and interpretive efforts, consistent with the need for continued protection of the natural system.

(d) Early in the site selection process the state must seek the views of affected landowners, local governments, other state and Federal agencies and other parties who are interested in the area(s) being considered for selection as a potential National Estuarine Research Reserve. After the local government(s) and affected landowner(s) have been contacted, at least one public meeting shall be held in the vicinity of the proposed site. Notice of such a meeting, including the time, place, and relevant subject matter, shall be announced by the state through the area's principal newspaper at least 15 days prior to the date of the meeting and by NOAA in the FEDERAL REGISTER.

(e) A state request for NOAA approval of a proposed site (or sites in the case of a multi-site Reserve) must contain a description of the proposed site(s) in relationship to each of the site selection principals (§ 921.11(c)) and the following information:

(1) An analysis of the proposed site(s) based on the biogeographical scheme/ typology discussed in § 921.3 and set forth in appendices I and II;

(2) A description of the proposed site(s) and its (their) major resources, including location, proposed boundaries, and adjacent land uses. Maps are required;

(3) A description of the public participation process used by the state to solicit the views of interested parties, a summary of comments, and, if interstate issues are involved, documentation that the Governor(s) of the other affected state(s) has been contacted. Copies of all correspondence, including contact letters to all affected landowners must be appended;

(4) A list of all sites considered and a brief statement of the reasons why a site was not preferred; and

(5) A nomination of the proposed site(s) for designation as a National Estuarine Research Reserve by the Governor of the coastal state in which the state is located.

(f) A state proposing to reactivate an inactive site, previously approved by NOAA for development as an Estuarine Sanctuary or Reserve, may apply for those funds remaining, if any, provided for site selection and feasibility (§ 921.11a)) to determine the feasibility of reactivation. This feasibility study must comply with the requirements set forth in § 921.11 (c) through (e).

Appendix C: Detailed Connecticut Site Screening Criteria

The following section identifies the detailed site screening criteria proposed for evaluating potential Connecticut NERR sites. This list is derived from NOAA OCM recommendations, modified by OLISP to address issues relevant to Connecticut.

1. Environmental Representativeness: Ecosystem Types/Physical Characteristics

In order to determine the representativeness of a candidate site relative to ecosystem type as defined in Appendix II of NERRS Program Regulations (15 CFR Part 921)¹², the site will be evaluated using the following suite of ecological, biological, physical, and chemical characteristics that fall under the general category of "ecosystem/physical characteristics". The first six criteria focus primarily on factors concerning a site's diversity and balance in regard to the types of ecosystems and habitats present, as well as any significant and/or unique biotic traits. The remaining criteria for physical/chemical characteristics focus on a site's position within its watershed, geological and salinity characteristics, water quality and the degree to which it is developed.

- 1.1. Ecosystem Composition:** A measure of the diversity of ecosystem types present within the boundaries of the site. Sites having a high diversity of major ecosystem types are considered to have a higher relative value for protection and management. Use the following ecosystem type designations as modified from Appendix II of NOAA Regulations 15 CFR Part 921.

Class I/Group I – Shoreline (upland habitats and non-tidal wetlands)

1. Maritime Forest-Woodland
2. Coastal Shrublands
3. Coastal Grasslands
4. Coastal non-tidal wetlands
5. Coastal Cliffs/bluffs

Class I/Group II - Intertidal (intertidal habitats)

1. Coastal Marshes
3. Intertidal Beaches
4. Intertidal Mud and Sand Flats
5. Intertidal Algal Flats

Class I/Group III – Subtidal (submerged habitats)

1. Subtidal Soft Bottoms
2. Subtidal Plants
3. Subtidal Hard bottoms (Rocky substrate and Oyster Reefs)

Table 1.1: Ecosystem Composition Scoring

¹² <http://www.nerrs.noaa.gov/BGDefault.aspx?ID=303>

3 Points	The site has a high diversity of ecosystem composition, possessing at least one representative habitat from each of the three ecosystem groups.
2 Points	The site has a moderate diversity of ecosystem composition, possessing at least one representative habitat from two of the three ecosystem groups.
1 Point	The site has a low diversity of ecosystem composition, possessing at least two representative habitats from only one of the three main ecosystem groups.
0 Points	The site has a very low diversity of ecosystem composition, possessing only a single habitat type within any one of the three main ecosystem groups.

1.2. Balanced Ecosystem Composition: A measure of the relative composition of ecosystem types within the boundaries of a site. This criterion is based on the assumption that sites with a balanced proportion of ecosystem types are of higher relative value for protection and management. High, moderate, and low values are assigned to sites that contain variations in the proportions of the three ecosystem types. A value of zero is assigned to a site that is dominated by one ecosystem type or contains less than three ecosystem types.

Table 1.2: Balanced Ecosystem Composition Scoring:

3 points	The site contains representative upland, intertidal, and subtidal habitats in relatively equal proportions so that the area covered by any one ecosystem type is not less than 25% of the total area.
2 points	The site contains representative upland, intertidal, and subtidal habitats, with the area covered by any one type is not less than 10% of the total area.
1 point	The site contains representative upland, intertidal, and subtidal habitats, with the area covered by any one type is less than 10% of the total area.
0 points	The site contains representative upland, intertidal, and subtidal habitats, with the area covered by two types being less than 10% of the total area or the site consists of habitats from only one or two of the three major ecosystem types.

1.3. Habitat Composition/Complexity: This is a measure of the diversity of habitat types present within the major ecosystem type found within the boundaries of the site. This criterion is based on the assumption that sites that have a high diversity of habitat types are of higher relative “value” for protection and management than those with a low diversity of habitat types. Major ecosystem type is defined here as that type that comprises approximately 40% of the site. Use the habitat designation listed above for “ecosystem composition”.

Table 1.3: Habitat Composition/Complexity Scoring

3 points	The candidate site has a high diversity of habitat composition within its major ecosystem type, i.e. it contains three or more habitat types or subtypes within its major ecosystem type (e.g. site consists of a combination of swamps, coastal marshes, and mud flats) or has a
----------	--

	combination of multiple coastal marsh types (e.g., high, mid, and low marsh zones).
2 points	The site has a moderate diversity of habitat composition within its major ecosystem type, i.e., it contains only two habitat types or subtypes within its major ecosystem type (e.g., consists of a combination of swamps and a single coastal marsh type).
1 point	The site has a low diversity of habitat composition within its major ecosystem type, i.e., its major ecosystem type consists of a single habitat type (e.g., maritime forest or Juncus marsh).

1.4. Uniqueness of Habitat: A measure of the presence of rare or unique habitat types within a candidate site. Although high value is placed on ecological representativeness it is also important to protect, manage and study rare habitats. Unique habitat is defined as a habitat type of limited known occurrence within the Southern New England biogeographic subregion.

Table 1.4: *Uniqueness of Habitat Scoring:*

3 Points	The site contains more than one unique or rare habitat types within its boundaries.
1 Point	The site contains one unique or rare habitat type within its boundaries.
0 Points	The site contains no unique or rare habitat types within its boundaries.

1.5. Importance of Habitat for Significant Flora and Fauna: A measure of the degree to which a site supports significant floral and faunal components. This criterion focuses on a site's contribution (i.e. function) toward supporting critical activities (e.g. feeding, nesting) of the following suite of significant floral and faunal components. The list includes groups of organisms that are known to be dependent upon estuarine habitats for part or all of their life cycle.

- Fish and shellfish spawning and nursery grounds (includes use by freshwater, resident estuarine, or estuarine-dependent marine species)
- Migratory bird and/or waterfowl habitats
- Bird nesting and/or roosting area
- Critical mammal habitat
- Non-game animals (amphibians, reptiles, etc.)
- State or federally listed species (animal or plant; including candidate species)

Table 1.5: *Importance of Habitat for Significant Flora and Fauna Scoring*

3 Points	The site supports at least four to six of the above faunal and floral components, and/or is a very important site for any threatened or Endangered species.
2 Points	The site supports at least three of the above faunal and floral components.
1 Point	The site supports one or two of the above faunal and floral components.
0 Points	The site does not support significant faunal and floral components.

1.6. New or Exemplary Typology: An assessment of whether one or more habitats at a site add a new or exemplary typology to the suite of ecosystem types of existing reserves in the Southern New England biogeographic subregion. When

considering a nomination for a new reserve, NOAA’s first priority is given to nominations that incorporate both a biogeographic subregion and an estuary type not represented by existing or developing reserves. NOAA gives second priority to nominations that incorporate ***either*** a biogeographic subregion ***or*** an estuary type not represented by existing or developing reserves. Since there are three existing reserves in the Southern New England biogeographic subregion, a site nominated in Connecticut should rank higher if it adds a new estuarine ecosystem type to the region.

Table 1.6: *New or Exemplary Typology Scoring*

3 Points	The site supports one or more ecosystem types that are not found in existing reserves in the Southern New England biogeographic subregion.
1 Point	The site supports a large area of an exemplary ecosystem type that is represented in existing reserves by only a limited or marginal example of such type.
0 Points	The site does not support any new typologies in the subregion and does not have a large area of an exemplary type that is underrepresented in existing reserves of this subregion.

1.7. Site’s Relationship to its Tidally Influenced Drainage Basin: A measure of relative proportion and/or juxtaposition of a site relative to the greater tidally influenced drainage basin to which it belongs. This factor assumes that, except for the deltaic portions of major river systems, most coastal drainage basins are relatively small, tidally influenced, coastal plain drainages, and that a site’s value increases as a function of how much of the overall drainage basin is encompassed within its boundaries.

Table 1.7: *Site’s Relationship to its Tidally Influenced Drainage Basin Scoring*

3 Points	The site encompasses a relatively large percentage (>75%) of the tidally influenced portion of the drainage basin to which it belongs.
2 Points	The site is not large relative to the overall drainage basin (<75%) but is situated either near the mouth or headwaters of the drainage basin.
1 Point	The site is small relative to the overall drainage basin (<25%) but is situated either near the mouth or headwaters of the drainage basin.
0 Points	The site is small relative to the overall drainage basin (<25%) and does not encompass either the mouth or headwaters of the drainage basin.

1.8. Geologic Uniqueness/Diversity of the Site: An indication of the uniqueness of the geological characteristics that define part or the whole of a candidate site, including surface and subsurface features. This criterion attempts to consider both the surface and subsurface geologic formations that may be unique within a site, particularly as they affect and/or define associated biotic habitats. Included in these considerations are the ways that local geology affects surface hydrology, such as drainage systems, and subsurface hydrology, such as shallow water aquifers.

Table 1.8: *Geologic Uniqueness/Diversity of the Site Scoring*

3 Points	The site has many unique geologic characteristics and contains a large number of formation types or strata within its boundaries.
2 Points	The site has at least one unique geologic characteristic and contains a moderate number of formation types or strata within its boundaries.
1 Point	The site has no unique geologic characteristics and contains a moderate number of formation types or strata within its boundaries.
0 Points	The site has no unique geologic characteristics or contains few or only one formation type or strata within its boundaries.

1.9. Hydrographic Uniqueness/Diversity of the Site: An indication of the uniqueness of the hydrographic characteristics that define the site or the immediate offshore vicinity that could impact or affect a site. This criterion attempts to consider characteristics such as circulation, tidal regime, and freshwater sources/amounts that can affect biotic habitats and ecosystem functions.

Table 1.9: Hydrographic Uniqueness/Diversity Scoring

3 Points	The site has many unique hydrographic characteristics within the site or in the immediate offshore vicinity.
2 Points	The site has a moderate of unique hydrographic characteristics within the site or in the immediate offshore vicinity.
1 Point	The site has at least one unique hydrographic characteristic within the site or in the immediate offshore vicinity.
0 Points	The site has no unique hydrographic characteristics within the site or in the immediate offshore vicinity.

1.10. Salinity Gradient: A measure of the range of salinity within a site’s boundaries. This criterion recognizes the effect of salinity on the biotic structure of estuarine habitats and assumes that a site with a greater range of salinity will support a broader range of habitat types and organisms.

Table 1.9: Salinity Gradient Scoring

3 Points	Site encompasses a 25 ppt or greater range of salinity within site boundaries (e.g., 0-25 ppt, 5-30 ppt).
2 Points	Site encompasses a 15-24 ppt range of salinity within site boundaries (e.g., 0-15 ppt, 5-25 ppt, 10-30 ppt).
1 Point	Site encompasses a 6-14 ppt range of salinity within site boundaries (e.g., 0-8 ppt, 10-22 ppt, 25-32 ppt).
0 Points	Site encompasses a 5 ppt or less range of salinity within its boundaries.

1.11. Degree Developed and Potential Impacts to Water Quality: This is a measure of the degree to which the site and its surrounding area are developed and the relative impacts to surface waters from human activities. This criterion is based on the assumption that human impacts to a site are directly proportional to the degree of development. Exceptions to this assumption may need to be considered where development at a site and its surrounding area have been subject to high levels of control. Data on land use and water quality

measurements from local, county, and state government agencies should be used to judge this criterion.

Table 1.10: Degree Developed and Potential Impacts to Water Quality Scoring

3 Points	The site is relatively undisturbed and the watershed contains low intensity development (e.g., few residences, minimal agricultural or silvicultural activity) and/or the land is in protected status .
2 Points	The site is relatively undisturbed and the watershed contains moderate development (e.g., relatively few residences, moderate agricultural or silvicultural activity, minimal commercial development).
1 Point	The site has been moderately disturbed and the watershed contains relatively intensive development (e.g., moderate density of residences, and/or the presence of industrial activity).
0 Points	The site has been extremely disturbed and the watershed contains very intensive development (e.g., high density residential, and/or commercial or industrial activity).

2. Value of the Site for Research, Monitoring, and Stewardship

2.1. Suitability of Site for Long-Term Research: This criterion measures the types of long-term estuarine research a site can support, as defined by the following six research areas:

- Ecology
- Physical and chemical processes
- Geology
- Biology
- Archeology and/or paleontology
- Habitat restoration and resource management issues

Table 2.2: Suitability of Site for Long-Term Research Scoring

3 Points	The site can support five to six of the research areas.
2 Points	The site can support four or five of the six.
1 Point	The site can support two or three of the six.
0 Points	The site can support one or none of the six.

2.2. Previous and Current Research Efforts: This criterion is a measure of the degree to which the site has been or is being used for past or current research, including considerations of the diversity of inquiry (fields of research), and the availability of data (the form and availability of documentation, e.g. peer reviewed papers, unpublished theses, grey literature). The assumption is that an area with previously established research interest offers greater opportunity for future projects to build on an existing knowledge base than an area that has not sparked such an interest in the past.

Table 2.2: Previous and Current Research Efforts Scoring

3 Points	The site has a long history of well-documented research projects in a wide variety of topics. Data is readily available.
----------	---

2 Points	The site has had some major and well-documented research projects, generating data that is readily available, but does not have a long history of research.
1 Point	The site has had only minor research projects generating limited data that may be difficult to obtain.
0 Points	The site has no known history of research.

2.3. Suitability of Site for Environmental Monitoring: Research Reserves are ideally and uniquely suited to conduct large scale and long-term environmental monitoring. Existing and developing monitoring programs within the NERRS include the System-Wide Monitoring Program (SWMP), aquatic invasive species monitoring, monitoring of long-term climate and environmental trends including sea level rise and global climate change, and additional monitoring driven by local issues. Considerations include the accessibility of the site and the overall logistical ease of installing and maintaining environmental monitoring equipment, and the suitability of a site to serve as a reference area for assessing long-term trends.

Table 2.3: Suitability of Site for Environmental Monitoring Scoring

3 Points	The site is ideally suited for providing environmental data to assess long-term resource trends or ecological characteristics for a wide range of needs.
2 Points	The site is adequate for providing environmental data to assess long-term resource trends or ecological characteristics for many needs.
1 Point	The site is marginal for providing environmental data to assess long-term resource trends or ecological characteristics.
0 Points	The site is unsuitable for providing environmental data.

2.4. Suitability of the Site for Stewardship Program Development: Research Reserve stewardship programs integrate science, monitoring and communities to protect, manage, and restore coastal habitats. The Long Island Sound Study, EPA’s National Estuary Program, currently advances similar stewardship initiatives to conserve natural areas, increase access to the Sound, protect important habitats, and plan for multiple uses. Using this context, sites that can augment stewardship efforts by adding to existing inventories or extending the capacity for stewardship activities at current stewardship locations would be highly valued.

Table 2.4: Suitability of the Site for Stewardship Program Development Scoring

3 Points	The site creates a new stewardship opportunity in CT.
2 Points	The site significantly extends stewardship goals at an existing site.
1 Point	The site moderately extends stewardship goals at an existing site.
0 Points	The site does not extend any opportunities to advance stewardship goals at an existing site.

2.5. Ability to Address Local, State, & Regional Coastal Management Issues: A goal of the NERR system is to improve coastal management through research, education, and interpretation, thus it is important that a site be relevant to local, state, and regional coastal management issues. Solutions to these issues may require either application of land management practices or limited habitat

manipulations consistent with 15 CFR 921.1(d) to perform meaningful research and assessment. The site should offer both adequate control areas plus areas where appropriate demonstration projects and habitat manipulations can be accommodated to study many of the issues of concern.¹³ Thus, a site where coastal management issues arise and can be addressed will be of greater value than sites where these issues do not arise. Significant coastal management issues include the following:

- Climate change and sea-level rise
- Habitat restoration (e.g. wetlands, SAV, coastal forests, beaches and dunes)
- Nutrient enrichment (hypoxia, SAV loss, other changes in biotic communities)
- Energy development impacts
- Shoreline erosion
- Commercial and/or recreational fisheries
- Waterfowl and other wildlife management
- Best management practices for habitat protection and restoration
- Best management practices to limit impacts from agricultural or development
- Best methods to control invasive species
- Pollutant effects on water quality and living resources
- Dredging and spoil disposal
- Prehistoric and early historic settlement and land use
- Freshwater inflow effects

Table 3.5: *Ability to Address Local, State, & Regional Coastal Management Issues Scoring*

3 Points	The site is highly appropriate for investigating coastal zone management issues consistent with 15 CFR 921.1(d).
2 Points	The site is appropriate for investigating coastal zone management issues.
1 Point	The site is minimally appropriate for investigating coastal zone management issues consistent with 15 CFR 921.1(d).
0 Points	The site is not appropriate for investigating coastal zone management issues consistent with 15 CFR 921.1(d).

3. Suitability of the Site for Training, Education, & Interpretation

3.1. Value of Site for Environmental Education, Interpretation, and Training Programs:

Well-developed education and outreach programs are critical to consider when selecting a site. On-going and new education and outreach programs should also be considered, including the Coastal Training Program,

¹³ While the range of coastal management issues includes a variety of potential study topics, it should be noted that some may not be appropriate to address within the site itself, e.g., commercial fishing activities, dredging, energy infrastructure impacts. However, a NERR site can be useful as a control to examine against other areas in these instances.

translation of research studies and results, and integration with other education and outreach programs.

- Kindergarten through high school education programs
- High school and undergraduate students working independently or in small groups
- Graduate students
- Professional development programs for teachers
- Training programs and workshops for coastal decision-maker audiences
- Interpretation targeted to the general public

Table 4.1: *Value of Site for Environmental Education and Interpretation Programs Scoring*

3 Points	The site is well suited to provide numerous, high quality training, education, and interpretation opportunities for all of the groups listed.
2 Points	The site is suitable for several good quality training, education, and interpretation opportunities for four or more of the groups listed.
1 Point	The site is well suited only for very limited educational and/or training opportunities for some of the groups listed
0 Points	The site is not well suited to support education, interpretation, and training programs.

3.2. Diversity and Quality of Education and Interpretation Opportunities:

Another important consideration is the degree to which a site can provide a well-rounded education program, with the ability to emphasize each of the following disciplines within an estuarine system:

- Ecology
- Physics and chemistry
- Geology
- Biology
- Archeology and/or paleontology
- Habitat restoration and/or coastal resource management

Table 3.2: *Diversity and Quality of Education and Interpretation Opportunities Scoring*

3 Points	The site is well suited for education in all of these areas .
2 Points	The site is well suited for education in 4 or 5 of these areas .
1 Point	The site is well suited for education in 1-3 of these areas .
0 Points	The site is not well suited for education in any of these areas .

3.3. Previous and Current Education and Outreach Efforts: This criterion is a measure of the degree to which the site has been or is being used for past or current education and outreach programs or initiatives, including considerations of the type and form of education and outreach (traditional training and education programs versus inquiry-based educational awareness workshops, or passive education through trail brochures or interpretive signage installation), and the availability of the program curricula (e.g. curricula on beach seining and species identification activities at the site, or interpretive trail markers, and whether or not information is readily available, such as on a public website or physically installed at the site). The assumption is that an area with previously established educational activities and interest from educators as an outdoor

classroom offers greater opportunity for future projects and educational initiatives, based on the physical site characteristics and the availability of educational curricula, interpretive signage or trail brochures, or other unique characteristics that lend themselves to quality outdoor learning experiences.

Table 3.3: *Previous and Current Education and Outreach Efforts Scoring*

3 Points	The site has a long history of well-documented education and outreach projects in a wide variety of disciplines. Curricula and brochures/guides are readily available.
2 Points	The site has had some major and well-documented education and outreach projects, generating curricula and/or passive educational tools that are readily available, but does not have a long history of education and outreach activities.
1 Point	The site has had only minor education and outreach projects and use generating limited curricula or other educational resources that may be difficult to obtain.
0 Points	The site has no known history of use for education and outreach activities.

3.4. Diversity and Availability of Target Audiences: No matter how well suited a site may be for education and interpretation programs, it is useless in this regard if the audiences do not exist, or the site is inaccessible. The ideal site should be well suited for programs directed at students and adults of all ages. Thus, the value of a site correspondingly increases with the size and availability of its target audiences.

- Kindergarten through high school students
- Undergraduate students
- Graduate students
- Teachers
- Coastal decision-makers
- Interpretation targeted to the general public

Table 3.3: *Diversity and Availability of Target Audiences Scoring*

3 Points	All of these audiences exist and can easily access the site.
2 Points	Some of these audiences exist, and/or most can access the site.
1 Point	Only a few of these audiences exist, and/or some would have difficulty accessing the site.
0 Points	Only one or two of these audiences exist and the site is largely inaccessible.

4. Acquisition & Management Considerations

4.1. Land Ownership: It has been demonstrated that research reserves are easier to acquire and manage if they have few property owners. Thus, it is a valuable consideration to assess the number of property owners of a site.

Table 4.1: *Land Ownership Scoring*

3 Points	The property is relatively undivided.
2 Points	The property is divided with few property owners.
1 Point	The property is divided with many property owners

4.2. Publicly Owned Lands and Feasibility of Land Acquisition: The ease of land acquisition and management increases correspondingly to the proportion of area that is in public or non-governmental organizations (NGOs) ownership and the degree to which there is interest in transferring properties or management control. Note: Federal lands already in protected status may not comprise a majority of the key land and water areas of a research reserve (15 CFR 921.1(g)).

Table 4.2: Publicly Owned Lands and Feasibility of Land Acquisition Scoring

3 Points	Greater than 50% of the site is currently owned by the state, federal, or local governments, or by NGOs, and these entities have an interest in participating in a reserve.*
2 Points	State, federal, or local governments, or NGOs own 25-50% of the site with the remainder in the hands of a few owners who have an interest in participating in a reserve.
1 Point	State, federal, or local governments, or NGOs own less than 25% of the site with the remainder in the hands of a few owners who have an interest in participating in a reserve.
0 Points	The site is owned by a large number of owners with little potential interest in sale, donation, or environmental easement.

**Note: Per 15 CFR 921.11 Federal land should not comprise greater than 50% of reserve site.*

4.3. Availability of Facilities: Given that sites with existing facilities and facility-related infrastructure may meet the objectives of the research reserve more quickly, it is of benefit for sites to have established facilities. However, consideration also should be given to sites with excellent potential that do not have facilities.

Table 4.3: Availability of Facilities Scoring

3 Points	The site has existing structures and facilities that can be used for reserve activities.
2 Points	The site has proximity to or limited existing structures and/or facilities that can be used for reserve activities.
1 Point	The site is away from existing facilities, but has excellent potential for the development of facilities for reserve activities.
0 Points	The site has limited potential for the development facilities for reserve activities.

4.4. Proximity and Accessibility of Site to Researchers, Educators, and Resource Management Decision Makers: This criteria is a measure of (1) the relative proximity of the site to urban centers, K-12 schools, research and education institutions, and resource management agencies which may routinely utilize the site and (2) the availability, adequacy and potential for roads, boat access, boardwalks, docks etc. at the site. The underlying assumption is that the proximity and accessibility of the site will enhance it utilization for education, research, monitoring, and resource protection purposes.

Table 4.4: Proximity and Accessibility of Site to Researchers, Educators, and Resource Management Decision Makers Scoring

3 Points	The site can be accessed by user groups during a single day trip . There are good roads, points for boat access , etc. at the site.
2 Points	The site is relatively isolated and utilization would require an overnight stay, but accommodations are readily available . There are adequate roads, points for boat access , etc. at the site.
1 Point	The site is relatively isolated and reasonable accommodations for an overnight stay are limited . There are limited roads, points for boat access , etc. at the site.
0 Points	The site is extremely isolated and accommodations to utilize the site are not available .

4.5. Controlled Land and Water Access: It is beneficial to research reserve management if site characteristics naturally limit access to certain degrees. This allows the research reserve to better direct public use toward program goals in appropriate areas of the site. Thus, by strategically placing roads, boat ramps, docks, camping areas, reserve facilities, etc. the research reserve establishes and maintains some control over how the site is used. Historical control of public use through state or federal regulation also is a useful consideration. The overall goal is to ensure a balance of public access with research, education, and stewardship.

Table 4.5: Controlled Land and Water Access Scoring

3 Points	The site is well protected and of a size that can be controlled . Historically, access has been controlled, and can easily be controlled in the future due to the presence of limited access points by boat or vehicle.
2 Points	The site has a limited number of access points . Historically, site access has not been controlled, but the site is of a size that it can be controlled in the future.
1 Point	Site access will be difficult to control due to the large number of access points . Historically, site access has not been controlled and it is unclear whether it can be controlled in the future.
0 Points	Site access cannot be controlled due to the large number of access points , lack of historical controls, the size of the area, and/or dense adjacent development.

4.6. Site Security: In order for a potential site to properly function, it is important that there be adequate surveillance and enforcement to assure that restrictions on uses are adhered to, or evidence that resources are being damaged or destroyed can be prevented or mitigated.

Table 4.8: Site Security Scoring

3 Points	The site currently has provisions for adequate surveillance and enforcement
2 Points	The does not have but could easily provide provisions for adequate surveillance and enforcement
0 Points	The site does not have nor could easily provide provisions for adequate surveillance and enforcement

4.7. Compatibility with Existing Management Practices and Consumptive and Non-Consumptive Uses: It is possible that existing management practices such as habitat manipulation, best management practices, and historic

and current consumptive (fishing, hunting, shellfishing etc.) and non-consumptive (walking, biking, camping etc.) uses might be in conflict with foreseeable management practices implemented by a reserve. Therefore, sites with fewer management practice issues are more likely to maintain both public support and the integrity of the site.

Table 4.6: *Compatibility with Existing Management Practices and Consumptive and Non-Consumptive Uses Scoring*

3 Points	Existing management practices and consumptive and non-consumptive uses would not be in conflict with any foreseeable management policy of a research reserve.
2 Points	Small areas of unique habitat, endangered species, or threats to the integrity of the ecosystem exist at the site, creating the potential for limited restrictions on existing management practices and/or consumptive and non-consumptive uses.
1 Point	Due to the presence of areas of unique habitat, endangered species, and threats to the integrity of the ecosystem, some restrictions on existing management practices and/or consumptive and non-consumptive uses would likely be needed.
0 Points	Large areas of unique habitat and threats to the integrity of the ecosystem at the site will require restrictions on existing management practices and/or consumptive and non-consumptive uses.

4.8. Compatibility With Adjacent Land and Water Use: It is more likely that research reserve programs will be successful if a site is located adjacent to lands and waters where compatible land and water use practices are employed. Thus it is useful to assess the degree to which adjacent land use is compatible with research reserve programs.

Table 4.7: *Compatibility With Adjacent Land and Water Use Scoring*

3 Points	All or most land and water use adjacent to the site is compatible with reserve programs, and will impose no negative impacts on the reserve.
2 Points	A large to moderate amount of the land and water adjacent to the site is compatible with reserve programs. Incompatible land- and water-use practices on adjacent lands either could be negotiated or would have only minor impacts on reserve programs.
1 Point	Some of the land and water adjacent to the site is currently used for activities that would have negative impacts on a reserve and may not be negotiable.
0 Points	A large percentage of the land and water adjacent to the site is currently used for activities that would have negative impacts on a reserve and would lead to conflicts.

4.9. Future Development Plans: Future development plans on or adjacent to research reserves can have major effects on research reserve programs, thus it is important to assess the likelihood that a site will remain undisturbed following designation of a reserve.

Table 4.9: *Future Development Plans Scoring*

3 Points	A majority of the land adjacent to the site is currently undeveloped and is very unlikely to be developed in the future.
2 Points	Up to half of the land adjacent to the site is currently undeveloped and is <i>not likely to be developed</i> in the future.
1 Point	A small amount of the land adjacent to the site is currently undeveloped and is not likely to be developed in the future, with limited levels of development on other lands.
0 Points	A majority of the land adjacent to the site is developed and the area is likely to continue to be developed in the future.

5. Climate Change Considerations

These criteria provide for considerations on two aspects of climate change. The first relates to the resiliency of current and potential facilities and locations thereof. The second relates to the resiliency of the natural resources that are present.

In considering climate change the SST will focus on sea-level rise as this represents the most likely climate change threat to a Connecticut NERR site. Recent efforts in estimating marsh migration in LIS provide a reasonable starting point. The Partnership Team, in collaboration with the SST will have the flexibility to adjust these values as needed if better scientifically valid estimates are available at the time of site selection.

Sea Level Rise Scenarios (in inches)*	Low (by ~2025)	Medium (by ~2055)	High (by ~2085)
Global Climate Model (max)	5	12	23
1m by 2100	5	17	32

** Values used by Warren Pinnacle Consulting in preparation for developing 2014 Sea-level rise Affecting Marsh Migration (SLAMM) models for CT and NY. Values derived from recent climate change adaptation efforts outlined in the 2011 New York State ClimAid report¹⁴.*

5.1 Facility Resiliency - Accessibility

This criterion focuses on the expected access to an existing facility by land-based vehicles under the effects of sea level rise. We are using this particular criterion since coastal flooding and sea level rise was ranked as the highest risk to infrastructure from the Infrastructure Adaptation Subcommittee of the Connecticut Governor’s Steering Committee on Climate Change. If reasonable adaptive management strategies can be employed to enhance accessibility (i.e., simple flood proofing, enhanced drainage, etc.) these factors can and should be used in the scoring.

¹⁴ Rozenzweig, C., Solecki, W., DeGaetano, A., O’Grady, M., Hassol, S., and Grabhorn, P. (2011). Responding to Climate Change in New York State: the ClimAID Integrated Assessment for Effective Climate Change Adaptation in New York State. New York State Energy Research and Development Authority (NYSERDA), Albany, New York.

3 Points	Facility likely accessible (or adaptable) under all scenarios.
2 Points	Facility likely accessible (or adaptable) under low & medium scenarios.
1 Point	Facility likely accessible (or adaptable) only under low scenario.
0 Points	Facility not likely accessible (or adaptable) under all scenarios.

5.2 Facility Resiliency - Vulnerability

This criterion focuses on the expected vulnerability of an existing facility to sea level rise since it is possible that, while accessible, it may be negatively impacted by inundation. Again, we use this particular criterion since coastal flooding and sea level rise was ranked as the highest risk to infrastructure from the Infrastructure Adaptation Subcommittee of the Connecticut Governor’s Steering Committee on Climate Change. As before, if reasonable adaptive management strategies can be employed to reduce facility vulnerabilities (i.e., simple flood proofing, elevation, enhanced drainage, etc.,) these factors can and should be used in the scoring.

3 Points	Facility likely not vulnerable (or adaptable) under all scenarios.
2 Points	Facility likely not vulnerable (or adaptable) under low and medium scenarios.
1 Point	Facility likely not vulnerable (or adaptable) under only low scenario.
0 Points	Facility likely vulnerable under all scenarios.

5.3 Resource Resiliency

Ecosystem resiliency with respect to climate change can be thought of as the ability of an intact, interacting ecological unit to withstand climatic challenges to its continuing function. This criterion is an assessment of how the resources at the site may fare in light of several measures of resiliency identified in the Natural Resource Adaptation Subcommittee of the Connecticut Governor’s Steering Committee on Climate Change, notably:

- *Conservation of key habitat features;*
- *Maintaining or reestablishing connectivity between habitats;*
- *Restoring degraded habitats;*
- *Relocating populations of species at risk; and*
- *Ensuring that representative area(s) of each habitat persist*

Additionally, if reasonable adaptive management strategies can be employed to enhance resource resiliency (i.e., adequate land for marsh migration, rolling easements, conservation easements, etc.,) these factors can and should be used in the scoring.

3 Points	Resources are expected to exhibit a high measure of resiliency under natural conditions or with reasonable adaptive management.
2 Points	Resources are expected to exhibit a moderate measure of resiliency under natural conditions or with reasonable adaptive management.
1 Point	Resources are expected to exhibit a low measure of resiliency under natural conditions or with reasonable adaptive management.
0 Points	Resources likely to be completely destroyed under natural conditions or with reasonable adaptive management.

***** FINAL DRAFT *****